

REMARKS

Claims 17-23 and 35-45 are pending in the application. Claims 17, 35, and 42 have been amended.

In the Office Action mailed August 4, 2005, the Examiner rejected claims 17-19, 21-23, 35-37, and 39-44 under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,432,742 ("Guan et al."). Claims 20, 38, and 45 were objected to but found to be allowable if rewritten into independent form.

Applicants respectfully disagree with the basis for the rejection and request reconsideration and further examination of the claims.

Independent claims 17, 35, and 42 have all been amended to recite that the injection into the mold of a molding material to secure the housing to the substrate is done by applying the molding material to the exterior of the housing only. In other words, only the exterior of the housing is subjected to the application of the molding material. This is done in order to achieve one of the purposes of the invention, which is to "ensure that no molding material 400 can contaminate or damage the sensitive die surface 200." (See Specification, page 9, lines 10-12.)

In contrast, Guan et al., U.S. Patent No. 6,432,742, is directed to a method of forming drop-in heat spreader plastic ball grid array packages in which a molding compound is heated and applied by injection tubes into a mold chase. In the portion of Guan et al. referenced by the Examiner at column 5, Guan et al. teach that a die 12 having bonding wires 16 attached thereto is placed within a molding chase 42. A molding compound is then "made flowable, by heating for example, and is applied by injecting tubes (not shown), for example, over heat spreader 40 to completely fill the space 26 between heat spreader 40 and substrate 14 with die 12, and around dimples 44." (See Guan et al., at column 6, lines 1-5.) Guan et al. further teach that "It is noted that no voids or gaps within molding compound 30 filled space 26' are formed." (See Guan et al., column 6, lines 9-10.)

Clearly, Guan et al. teach applying a molding material to the inside of a mold chase or cover 42 instead of on the exterior only, as in the present claimed invention. Moreover, it is in direct contact with the die inside the cover 42.

Claim 17 is thus directed to a method of manufacturing a semiconductor device that includes attaching a semiconductor die to a substrate; positioning a housing on the substrate, in a position surrounding the die; positioning a mold over the housing such that an upper surface of the housing abuts against an inner surface of the mold; and injecting into the mold a molding material that is applied only to an exterior of the housing to secure the housing to the substrate. Nowhere do Guan et al. teach or suggest applying a molding material only to an exterior of the housing. Rather, Guan et al.'s purpose is to surround the die with the molding compound in order to transfer heat from the die through the molding compound and out through the molding chase. Applying the molding compound to only the exterior of the molding chase would defeat the purpose of Guan et al. Thus, one of ordinary skill would not be motivated to modify Guan et al. to achieve the present claimed invention.

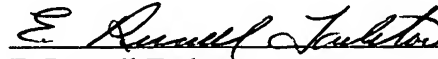
Independent claims 35 and 42 similarly recite the molding material being applied to only an exterior of the housing. These claims, and all claims depending therefrom are allowable for the features they recite as well as for the reasons discussed above with respect to claim 17.

In view of the foregoing, applicants respectfully submit that all of the claims in this application are now clearly in condition for allowance. In the event the Examiner disagrees or finds minor informalities that can be resolved by telephone conference, the Examiner is urged to contact applicants' undersigned representative by telephone at (206) 622-4900 in order to

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expeditiously resolve prosecution of this application. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited.

Respectfully submitted,
SEED Intellectual Property Law Group PLLC



E. Russell Tarleton
Registration No. 31,800

ERT:jl

Enclosure:
Postcard

701 Fifth Avenue, Suite 6300
Seattle, Washington 98104-7092
Phone: (206) 622-4900
Fax: (206) 682-6031

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